

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ARTHUR H. THOMPSON and GRANT A. GIST

Appeal No. 93-2518
Application 07/696,059¹

ON BRIEF

Before MEISTER, JERRY SMITH and CRAWFORD, Administrative Patent Judges.

CRAWFORD, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1-29, which are all the claims pending in the application.

¹ Application for patent filed May 6, 1991.

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Appellants' invention is a method for geophysical prospecting of a subsurface region. Claim 1 is exemplary of the subject matter on appeal:

1. A method for geophysical prospecting of a preselected subsurface region, comprising;

generating an electric field of sufficient strength to penetrate said preselected region to a depth of interest,

converting said electric field to a seismic wave in at least one porous subsurface earth formation in said preselected region containing at least one fluid, and

detecting said seismic wave with a seismic detector.

THE REFERENCES

The following prior art was relied on by the examiner in support of new grounds of rejections made by the examiner in the examiner's answer:

Evjen	2,172,557	Sep. 12, 1939
Taylor, Jr.	2,172,778	Sep. 12, 1939
Zimmerman, Jr.	3,392,327	July 9, 1968
Tsao et al. (Tsao)	3,660,754	May 2, 1972
Thompson	4,904,942	Feb. 27, 1990

Morrison, Jr. et al. (Morrison), "Electrokinetic Energy Conversion in Ultrafine Capillaries," The Journal of Chemical Physics, Vol. 43, No. 6, (Sept. 1965), pages 2111-2115.

THE REJECTIONS

Claims 1, 8-12, 14, 16-18, 22, 23 and 25-29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Thompson or Zimmerman in view of Morrison.

Claims 2-7, 15, 19-21 and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Thompson or Zimmerman in view of Morrison as applied to claim 1 and further in view of any one of Taylor, Tsao or Evjen.²

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the examiner and the appellants regarding the rejections, we make reference to the Examiner's Answer (Paper No. 13) and the Supplemental Examiner's Answer (Paper No. 21) for the examiner's complete reasoning in support of the rejections and to Appellants' Brief (Paper No. 11), Reply Brief (Paper No. 14) and the Supplemental Reply Brief (Paper No. 22) for the appellants' arguments thereagainst.

OPINION

In reaching our conclusions in this case, we have given careful consideration to appellants' invention as described in the specification, the appealed claims, to the prior art applied by the examiner, the evidence submitted by the appellants and to the respective viewpoints advanced by appellants and the

² It appears that claim 13 was inadvertently left out of the statement of this rejection. We will assume, as did the appellants (reply brief at page 3) that claim 13 is included in this rejection.

examiner. These considerations lead us to conclude that the examiner's rejections of claims 1-29 should not be sustained. Our reasons for this determination follow.

Turning first to the rejection of claims 1, 8-12, 14, 16-18, 22, 23 and 25-29 under 35 U.S.C. § 103 as unpatentable over Thompson or Zimmerman in view of Morrison, we agree with the examiner that:

...Thompson and Zimmerman, Jr. ...each discloses a method and apparatus for geophysical prospecting of a subsurface region by generating acoustic energy in the subsurface region and detecting, at a remote surface region, the electromagnetic energy that is formed by a conversion of the acoustic energy to electromagnetic energy at a porous interface. [examiner's answer at page 5]

Regarding the recitation in claim 1 that an electric field is generated to penetrate a preselected region to a depth of interest and later converted to a seismic wave, the examiner relies on the following teaching of Morrison:

When an axial electric field is impressed on a fluid electrolyte in a fine capillary tube and the flow is restricted, a pressure difference appears between the ends of the tube. Conversely, when an axial pressure gradient is impressed on the fluid and the electrical current is restricted, an electrical potential difference appears. In the first of these effects a conversion of electrical into pumping power occurs. (page 2111, Col. 1) (Emphasis added).

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We note that Morrison also discloses that the conversion is favored by small tube radii (Page 2111, Col. 2).

The examiner is of the opinion that:

Morrison clearly implies that the analysis of a conversion of electromagnetic energy to pressure variations or electro-mechanical energy (of which acoustic and seismic energy are) and vice-versa, the conversion of electromechanical energy to electromagnetic energy are not unlike each other. [Examiner's Answer at page 5].

We will not sustain this rejection.

It is the burden of the examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the expressed or implied suggestions found in the prior art. See In re Sernaker, 702 F.2d 989, 994, 217 USPQ 1, 5 (Fed. Cir. 1983).

We agree with the appellants that Morrison does not suggest any application to geophysical prospecting but rather is limited to pump/generator devices. In our view, the only suggestion for combining the teachings of Morrison with either Thompson or Zimmerman in the manner proposed by the examiner stems from impermissible hindsight knowledge derived from the appellants' own disclosure. Accordingly, we will not sustain the rejection of claims 1, 8-12, 14, 16-18, 22, 23 and 25-29 under 35

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U.S.C. § 103 as unpatentable over Thompson or Zimmerman in view of Morrison.

The rejection of claims 2-7, 15, 19-21 and 24 is based on the combination of Morrison with either Thompson or Zimmerman and further in view of Taylor, Tsao or Evjen. We have reviewed the disclosures of Taylor, Tsao and Evjen but they do not cure the deficiencies noted above for the combination of Morrison with either of Thompson or Zimmerman. Therefore, we will likewise not sustain this rejection.

The decision of the examiner is reversed.

REVERSED

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JAMES M. MEISTER)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JERRY SMITH)	
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
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